

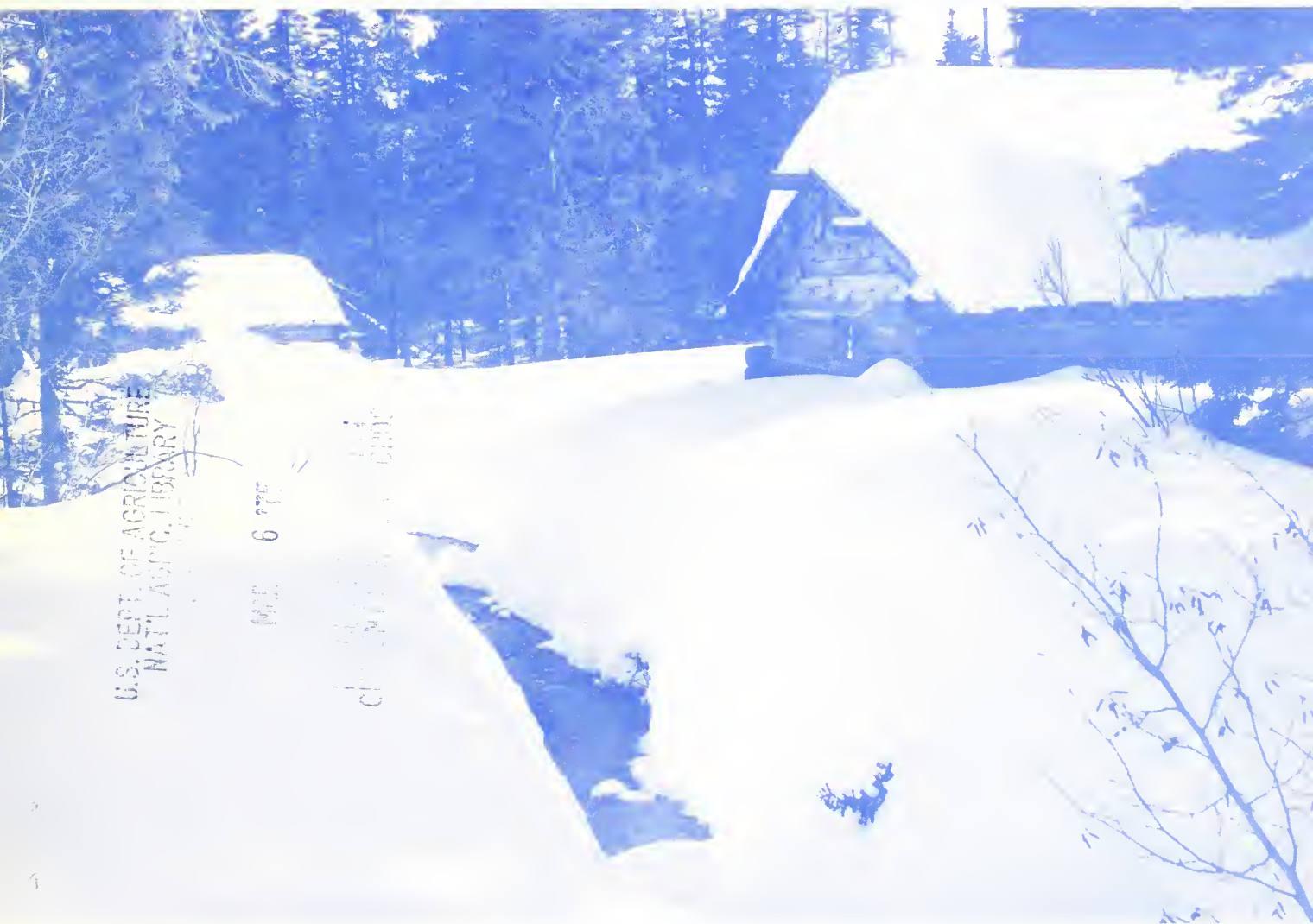
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WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada



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U. S. DEPARTMENT of AGRICULTURE ★ SOIL CONSERVATION SERVICE

Collaborating with
CALIFORNIA DEPARTMENT of WATER RESOURCES
and
BRITISH COLUMBIA DEPARTMENT of
LANDS, FORESTS and WATER RESOURCES

AS OF
FEB. 1, 1975

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season will interact with a resultant average effect on runoff. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1900 snow courses in Western United States and in the Columbia Basin in British Columbia. Networks of automatic snow water equivalent and related data sensing devices, along with radio telemetry are expanding and will provide a continuous record of snow water and other parameters at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

*Cover Photo: Cabins near Sacajawea Snow Course
in Bridger Mountains, Montana.*

SCS PHOTO 11-P480-15

PUBLISHED BY SOIL CONSERVATION SERVICE

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, West Technical Service Center, Room 111, 511 N.W. Broadway, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	204 E. 5th. Ave., Room 217, Anchorage, Alaska 99501
Arizona	6029 Federal Building, Phoenix, Arizona 85025
Colorado (N. Mex.)	P. O. Box 17107, Denver, Colorado 80217
Idaho	Room 345, 304 N. 8th. St., Boise, Idaho 83702
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Bldg., 125 South State St., Salt Lake City, Utah 84138
Washington	360 U.S. Court House, Spokane, Washington 99201
Wyoming	P. O. Box 2440, Casper, Wyoming 82601

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK FOR WESTERN UNITED STATES

Including Columbia River Drainage in Canada

ISSUED

FEBRUARY 1, 1975

The Soil Conservation Service coordinates snow surveys conducted by its staff and many cooperators, including the Bureau of Reclamation, Corps of Engineers, Forest Service, National Park Service, NOAA, National Weather Service, Geological Survey, and other Federal Agencies, Departments of State Government, Irrigation Districts, Power Companies, and others.

The Department of Water Resources coordinates snow surveys in California.

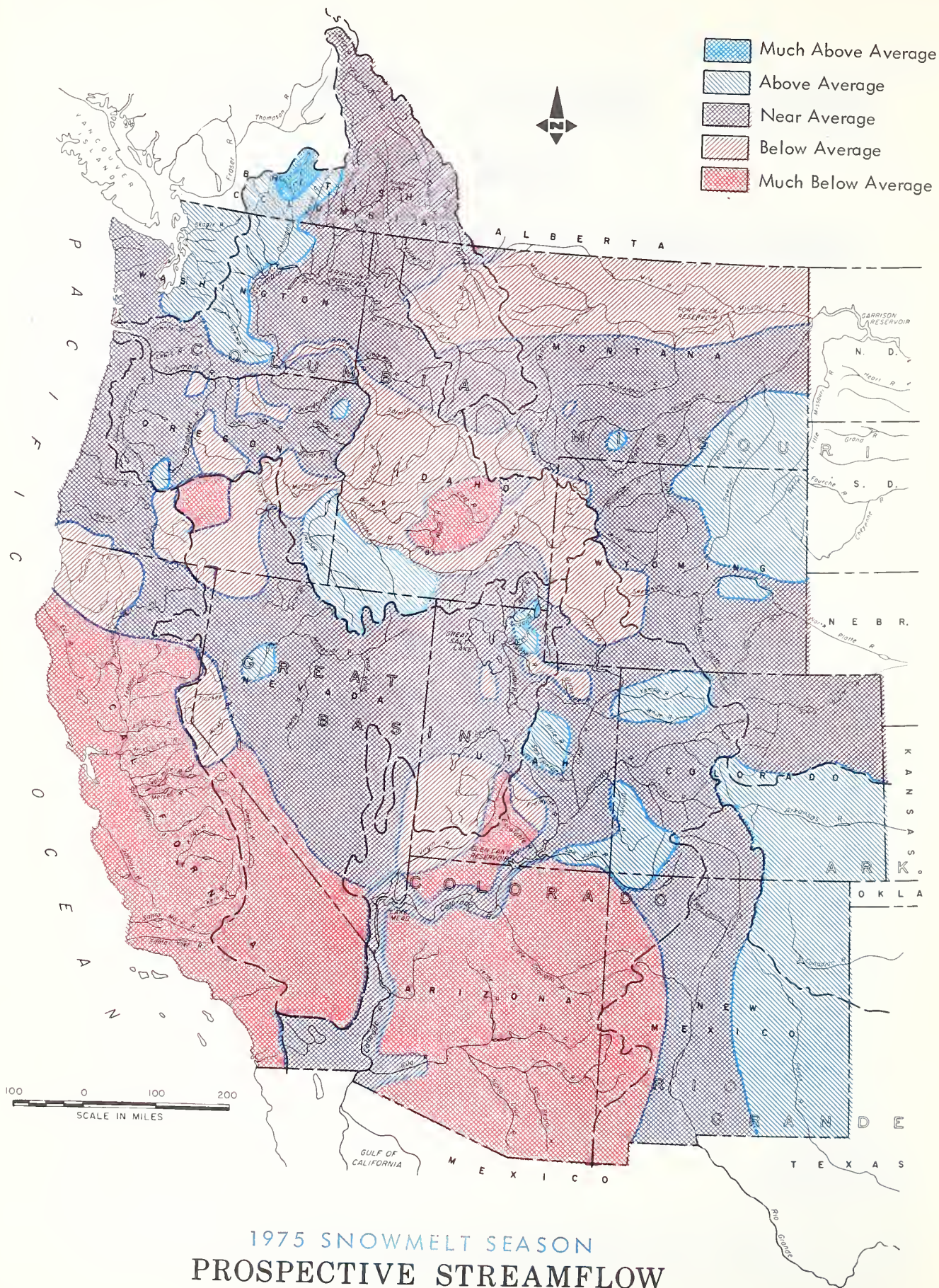
The Water Resources Service, Department of Lands, Forests, and Water Resources directs snow surveys in British Columbia.

This report was prepared by the Water Supply Forecasting Unit, Engineering Division, Soil Conservation Service, from data supplied by Snow Survey Supervisors of the Soil Conservation Service in the States of Alaska, Arizona, Colorado and New Mexico, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming.

Data from California was supplied by the Chief, Water Supply Forecast and Snow Survey Unit, Department of Water Resources.

Data from British Columbia was supplied by the Chief, Hydrology Division, Water Investigations Branch, Department of Lands, Forests and Water Resources.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
KENNETH E. GRANT, ADMINISTRATOR



1975 SNOWMELT SEASON
PROSPECTIVE STREAMFLOW
AS OF FEBRUARY 1, 1975

WATER SUPPLY OUTLOOK

1975 SNOWMELT SEASON
FEBRUARY 1, 1975

THE WATER SUPPLY OUTLOOK IS FAIR TO EXCELLENT FOR MOST MAJOR IRRIGATED AREAS. DRY WEATHER DURING REMAINING WINTER AND SPRING MONTHS COULD CREATE SHORTAGES IN PARTS OF CALIFORNIA, ARIZONA, WESTERN NEW MEXICO, SOUTHWESTERN UTAH, CENTRAL IDAHO, WESTERN WYOMING, NORTHERN MONTANA AND SOUTH CENTRAL OREGON. RESERVOIR STORAGE IS NEAR AVERAGE OR ABOVE IN MOST STATES.

Snow accumulation to February 1 has been more variable than usual throughout the western states, with areas of below normal snowpack being located only short distances from other areas where the snow is well above average.

There are three general areas where below normal streamflow is expected. The first and biggest area includes most of California and Arizona, with smaller areas along their borders with Nevada, Utah and New Mexico. A smaller area extends from south central Oregon thru central Idaho into western Wyoming. The smallest area runs across the northern third of Montana. In these areas the spring and summer runoff will be near one-half to a little over three-fourths of usual amounts. Lowest streamflow is expected in the Arizona-California area.

Although there are a few isolated areas such as the Owyhee River in the tri-corner area of Oregon, Idaho and Nevada, and the Pecos River in New Mexico - both of which have about 50 percent above average snowpacks - on most other watersheds of the west the snow within a range of plus or minus 15 percent of average.

According to reports received from the British Columbia Water Resources Service, Department of Lands, Forests and Water Resources, snow in British Columbia is average or above except on the East Kootenay River where it is about 10 percent less than usual. Snow on headwater areas of the Okanagan and Kettle rivers is very heavy, similar to the 1974 pack and ranges from about 35 to 55 percent above average.

Most streams in the Missouri Basin are currently expected to supply between average to 80 percent of average amounts. Principal exceptions are some streams draining from Wyoming's Big Horn Mountains where flows will be near 25 to 30 percent above average. Average to near 15 percent above average flows can be expected from the North and South Platte, the Arkansas and Rio Grande rivers.

The California Department of Water Resources reports that water supply potentials are only

fair in most areas of the State. Precipitation and runoff have been below normal for the last four months and February 1 snow surveys showed the water content to be about 70 percent of normal. However, the storms of early February produced precipitation almost equal to the total increment normally expected for the month. Therefore, some improvement in water supply conditions are anticipated by month's end.

In the Upper Colorado River Basin snow cover is about 5 percent above average, but ranges from 86 percent on Wyoming's Green River to 134 percent on Colorado's Uncompahgre River. With storage in Lake Powell at 205 percent average and the April-July inflow forecast at 105 percent, prospects for water and power interests in the Lower Basin are also good.

In Arizona, while water supplies will be adequate, they will be significantly below average.

Reservoir storage in the Great Basin is excellent. This, combined with expected streamflow will provide adequate to good water supplies for most areas.

Snowfall in Alaska has been heavy this winter, with some areas already having an average April 1st snowpack.

MISSOURI BASIN

So far this year, snowfall on the upper Missouri River and its tributaries in Montana has been near average or below on most watersheds. It is near 20 percent below average on headwaters of the Madison, Red Rock, Dearborn, Sun, Teton, Maria and Milk river drainages. A small area of above average snow is reported near Bozeman along the north end of the Gallatin Range.

Sharp differences in snowpack exist between the headwaters of the Yellowstone River and

SUMMARY OF SNOW WATER EQUIVALENT MEASUREMENTS FEBRUARY 1, 1975

MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :		MAJOR BASIN AND SUB - WATERSHED	WATER EQUIVALENT IN PERCENT OF :	
	LAST YEAR	AVERAGE		LAST YEAR	AVERAGE
MISSOURI BASIN			SNAKE BASIN		
Jefferson	88	92	SNAKE above Jackson, Wyo.	65	81
Madison	69	79	SNAKE above Hiese, Idaho	72	86
Gallatin	107	102	SNAKE abv.American Falls Res.	70	84
Missouri Main Stem	101	102	Henry's Fork	59	73
Yellowstone	78	84	Southern Idaho Tributaries	85	110
Shoshone	84	100	Big and Little Wood	41	57
Wind	90	92	Boise	59	82
North Platte	62	100	Owyhee	90	150
South Platte	93	105	Payette	59	87
ARKANSAS BASIN			Malheur	80	105
Arkansas	103	116	Weiser	49	79
Cucharas-Purgatoire	84	114	Burnt	60	105
RIO GRANDE BASIN			Powder	65	100
Rio Grande (Colo.)	102	107	Salmon	59	89
Rio Grande (New Mexico)	73	110	Grande Ronde	65	105
Pecos	84	148	Clearwater	83	107
COLORADO BASIN			LOWER COLUMBIA BASIN		
Green (Wyo.)	78	86	Yakima	82	117
Yampa - White	101	120	Umatilla	65	120
Duchesne	91	97	John Day	70	95
Price	69	100	Deschutes - Crooked	78	100
Upper Colorado	85	108	Hood	55	90
Gunnison	84	106	Willamette	65	95
San Juan	89	107	Lewis	57	72
Dolores	81	112	Cowlitz	72	98
Virgin	51	70	PACIFIC COASTAL BASIN		
Gila	112	76	Puget Sound	83	125
Salt	57	67	Olympic Peninsula	59	86
Verde	42	73	Umpqua - Rogue	85	120
GREAT BASIN			Klamath	90	100
Bear	81	96	Trinity	65	75
Logan	80	91	CALIFORNIA		
Ogden	77	104	CENTRAL VALLEY		
Weber	83	117	Upper Sacramento	70	85
Provo - Utah Lake	81	104	Feather	60	60
Jordan	80	111	Yuba	70	75
Sevier	67	93	American	70	75
Walker - Carson	48	60	Mokelumne	70	75
Tahoe - Truckee	59	62	Stanislaus	70	70
Humboldt	123	106	Tuolumne	60	70
Lake Co. (Oregon)	90	75	Merced	60	70
Harney Basin (Oregon)	105	125	San Joaquin	60	70
Owens (California)	35	40	Kings	60	75
UPPER COLUMBIA BASIN			Kaweah	55	65
Columbia (Canada)	95	112	Tule	35	40
Kootenai	75	97	Kern	45	50
Clark Fork	85	99	Data for California Watersheds supplied by Dept. of Water Resources, and for British Columbia Watersheds by Dept. of Lands, Forests and Water Resources.		
Bitterroot	84	108			
Flathead	71	86	Average is for the 1958-72 period. California averages are for the period 1931-70. Based on Selected Snow Courses determined by Distribut- ion within the Basin, Length of Record and Re- petitive Monthly Measurement Schedules.		
Spokane	94	116			
Okanogan	87	116			
Methow	64	98			
Chelan	84	128			
Wenatchee	88	112			

the north and east slopes of the Absaraka-Beartooth mountains. It is below average on the former, above average on the latter. Snow conditions on the Bighorn River drainages are also highly variable. On the north end of the Big Horn Mountains the snowpack is above average.

On the North Platte River snow cover is just average. It is only a few percent higher on the South Platte River.

Soils under the snowpack are generally drier than usual on northern Montana watersheds, but improve to near average in the south except on extreme headwaters of the Yellowstone and Clark Fork rivers where moisture continues to be deficient.

Major streams in Montana where streams are forecast to flow at near 10 to 20 percent below average next spring and summer include the upper Yellowstone, the Red Rock, Ruby and Bridger Creek drainages in the southwest and on all watersheds north of the Dearborn River. Other streams should generate near average runoff.

In Wyoming's Big Horn Mountains the Tongue and Powder rivers, as well as Shell Creek near Shell are expected to yield near 25 to 30 percent above average flows. Lowest runoff is expected from the Little Popo Agie near Lander, at 16 percent less than usual.

Flow of the North and South Platte rivers and their tributary streams in Wyoming and Colorado currently has prospects of being near average.

Carryover reservoir storage is 93 percent average in Montana, 110 percent average on Wyoming's Wind River, 166 percent on the North Platte and 102 percent on the South Platte.

ARKANSAS BASIN

Snowpack on the Arkansas River is 15 percent above normal for this time of year and is expected to yield a somewhat above normal streamflow on all watersheds, including tributaries such as the Cucharas and Purgatoire rivers. Flow of the Canadian River is also expected to be above average.

Storage in reservoirs is below normal, since heavy use of stored water was required to meet crop needs in 1974. One example is given by Conchas Reservoir on the Canadian River in New Mexico, where storage is 70 percent of average.

Since about 40 percent of the snow season remains, the water outlook could change. At present, above average snowfall for the balance

of the season would be desirable to fill the reservoirs and still provide adequate water for summer use.

RIO GRANDE BASIN

Snow cover on watersheds of the Rio Grande Basin is a little above normal in Colorado and northern New Mexico. However, because mountain soils underlying the snowpack are generally drier than normal, flow of the main river and its principal tributaries is expected to be near normal.

A little farther south on the headwaters of the Pecos River the snow cover is more favorable, and is near half again more than is usual for this time of year.

Carryover storage in Elephant Butte Reservoir is essentially normal at 97 percent. Storage in El Vado, while above average, is only 71 percent of what it was a year ago.

COLORADO BASIN

The present snow cover is a little (5 percent) above average in the Upper Colorado River Basin. It varies from a low of 86 percent of average on the Green River in Wyoming to a high of 134 percent on Colorado's Uncompahgre River.

While total flow of the Basin into Lake Powell is expected to be a little above average, there is considerable variability between streams in the Basin. Flow of the Uinta and Whiterocks rivers in Utah is now forecast at near 30 percent below average. In contrast, forecast flow of the Yampa River at Steamboat Springs, Colorado is set at 128 percent.

Inflow to Flaming Gorge Reservoir is indicated to be near 89 percent. After contributions from the Yampa, White and Duchesne rivers, flow of the Green River at Green River, Utah is forecast at 94 percent. The Colorado near Cisco, Utah is forecast at 115 percent, while flow of the San Juan at Bluff, Utah is anticipated to be 118 percent. Present prospects for the April-July inflow to Lake Powell are for 105 percent.

Reservoir storage in the major reservoirs of the Upper Basin is well above average.

In the Lower Colorado Basin the Virgin River is forecast to yield 21 percent less than its usual amount. In Arizona, while water supplies will be adequate, they will be significantly below average. Snow cover varies from 65 to 75 percent of normal.

SELECTED STREAMFLOW FORECASTS

FEBRUARY 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
SASKATCHEWAN				
St. Mary near Babb, Montana <u>1/</u>	440	90	April-Sept.	
UPPER MISSOURI				
Beaverhead near Grant, Montana <u>2/</u>	120	83	April-Sept.	151
Big Hole near Melrose, Montana	670	90	April-Sept.	
Madison near Grayling, Montana <u>3/</u>	450	94	April-Sept.	605
Gallatin near Gateway, Montana	530	100	April-Sept.	
Sun at Gibson Dam, Montana <u>4/</u>	470	80	April-Sept.	624
Belt near Monarch, Montana				
Marias near Shelby, Montana <u>5/</u>	450	80	April-Sept.	554
Missouri near Landusky, Montana <u>6/</u>	4,100	87	April-Sept.	
near Williston, North Dakota <u>7/</u>	10,800	92	April-Sept.	
S. Fk. Musselshell above Martinsdale, Montana				
Milk at Eastern Crossing, Montana				
Yellowstone at Yellowstone Lake Outlet, Wyo.	725	88	April-Oct.	1,134
at Corwin Springs, Montana	1,860	93	April-Sept.	2,720
at Miles City, Montana <u>8/</u>	6,100	96	April-Sept.	
Clarks Fork near Belfry, Montana	580	96	April-Sept.	
Shoshone below Buffalo Bill Res., Wyo. <u>9/</u>	795	96	April-Sept.	1,105
Wind near Dubois, Wyoming	100	98	April-Sept.	137
at Riverton, Wyoming <u>10/</u>	645	97	April-Sept.	756
below Boysen Res., Wyoming <u>11/</u>	905	90	April-Sept.	1,177
Bull Lake Creek near Lenore, Wyoming	174	96	April-Sept.	199
Little Popo Agie near Lander, Wyoming	40	84	April-Sept.	60
Tensleep near Tensleep, Wyoming	83	105	April-Sept.	
Medicine Lodge near Hyattville, Wyoming	21.3	100	April-Sept.	
Shell Creek near Shell, Wyoming	90	123	April-Sept.	82
Big Horn near St. Xavier <u>8/</u>	1,700	92	April-Sept.	
Tongue near Dayton, Wyoming	149	132	April-Sept.	122
No. Fork Powder near Hazelton, Wyoming	13.0	130	April-Sept.	7.0
PLATTE				
North Platte at Sinclair, Wyoming	730	113	April-Sept.	915
Encampment near Encampment, Wyoming	138	98	April-Sept.	205
Laramie & Pioneer Canal, nr Woods, Wyo. <u>12/</u>	128	101	April-Sept.	158
Big Thompson at Drake, Colorado <u>13/</u>			April-Sept.	
Clear at Golden, Colorado <u>14/</u>			April-Sept.	
St. Vrain at Lyons, Colorado <u>15/</u>			April-Sept.	
Cache LaPoudre near Fort Collins, Colorado <u>16/</u>			April-Sept.	
ARKANSAS				
Arkansas at Salida, Colorado <u>17/</u>			April-Sept.	
Cucharas near LaVeta, Colorado			April-Sept.	
Purgatoire at Trinidad, Colorado			April-Sept.	
RIO GRANDE				
Rio Grande near Del Norte, Colorado <u>18/</u>			April-Sept.	
at Otowi Bridge, New Mexico <u>19/</u>			March-July	
Conejos near Mogote, Colorado <u>20/</u>			April-Sept.	
El Vado Res., Inflow, New Mexico			March-July	
Pecos at Pecos, New Mexico			March-July	
UPPER COLORADO				
Colorado, Grandby Res., Inflow, Colorado <u>21/</u>			April-Sept.	
near Dotsero, Colorado <u>22/</u>	1,550	108	April-Sept.	
near Cameo, Colorado <u>23/</u>	2,550	106	April-Sept.	
near Cisco, Utah <u>24/</u>	3,260	115	April-July	
Lake Powell Inflow, Arizona <u>25/</u>	7,213	105	April-July	
Roaring Fork at Glenwood Springs, Colorado <u>26/</u>	775	109	April-Sept.	
Uncompahgre at Colona, Colorado			April-Sept.	
Gunnison, Blue Mesa Res. Inflow, Colorado <u>27/</u>			April-Sept.	

Forecasts in California provided by Department of Water Resources.

Average is for 1958-72 period except California. California is computed for 1921-70 period.

Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS

FEBRUARY 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLORADO (continued)				
Gunnison, near Grand Junction, Colorado <u>28/</u>	1,250	106	April-Sept.	
Dolores at Dolores, Colorado -	275	119	April-Sept.	
Green at Warren Bridge, Wyoming	286	87	April-Sept.	389
at Green River, Wyoming <u>29/</u>	835	84	April-Sept.	1,165
Flaming Gorge Res. Inflow, Utah <u>27/</u>	1,030	89	April-July	
at Green River, Utah <u>30/</u>	2,664	94	April-July	
Big Sandy near Big Sandy, Wyoming	50	89	April-Sept.	67
Yampa at Steamboat Springs, Colorado	350	128	April-Sept.	
near Maybell, Colorado	1,130	125	April-Sept.	
Little Snake near Dixon, Wyoming	296	98	April-Sept.	
White near Meeker, Colorado	325	110	April-Sept.	
Strawberry at Duchesne, Utah <u>40/</u>	52	92	April-July	
Duchesne near Tabiona, Utah <u>31/</u>	90	87	April-July	
at Randlett, Utah <u>40/</u>	175	93	April-July	
Lakefork below Moon Lake, Utah <u>32/</u>	63	91	April-July	
Uinta near Neola, Utah	63	72	April-July	
Whiterocks near Whiterocks, Utah	40	68	April-July	
Price, Scofield Res. Inflow, Utah <u>33/</u>	40	118	April-July	
Cottonwood near Orangeville, Utah <u>34/</u>	54	116	April-July	
San Juan, Navajo Res. Inflow, New Mexico <u>27/</u>	650	109	April-July	
near Bluff, Utah <u>35/</u>	1,003	118	April-July	
Animas at Durango, Colorado	500	118	April-Sept.	
LOWER COLORADO				
Virgin near Virgin, Utah	38	79	April-June	
Little Colorado above Lyman, Arizona	3.5	31	January-June	1.6
Gila near Solomon, Arizona	69	43	January-May	32
Frisco at Clifton, Arizona	30	39	January-May	16
Salt at Intake, Arizona	139	43	January-May	114
Tonto above Roosevelt, Arizona	12	26	January-May	20
Verde above Horseshoe Dam, Arizona	106	56	January-May	84
GREAT BASIN				
Bear at Utah-Wyo. State Line	102	91	April-July	126
at Harer, Idaho	245	90	April-Sept.	
Smith's Fork near Border, Wyoming	92	80	April-Sept.	141
Thomas Fork near Wyo.-Ida. State Line	22	67	April-Sept.	39
Logan near Logan, Utah <u>36/</u>	126	112	April-July	153
Ogden, Pine View Res. Inflow, Utah <u>27/</u>	139	126	April-June	165
Weber near Oakley, Utah	88	86	April-June	127
Provo near Hailstone, Utah <u>37/</u>	100	98	April-July	
Strawberry Res. Inflow, Utah	40	89	April-July	
Utah Lake Net Inflow, Utah	212	102	April-July	
Big Cottonwood near Salt Lake City, Utah	37	103	April-July	
Beaver near Beaver, Utah	7	95	April-July	
Sevier near Hatch, Utah	31	76	April-July	
near Gunnison, Utah	43	110	April-July	
So. Fork Humboldt near Elko, Nevada				
Humboldt at Palisades, Nevada	205	106	April-July	
Truckee at Farad, California <u>38/</u>				
East Carson near Gardnerville, Nevada				
West Walker near Coleville, California	127	87	April-July	
Donner und Blitzen near Frenchglen, Oregon	59	108	March-July	
Silvies near Burns, Oregon	79	84	March-July	
Chewaucan near Paisley, Oregon	61	70	March-July	145
Deep above Adel, Oregon	60	77	March-July	
Bidwell near Ft. Bidwell, California				
Owens below Long Valley Res., California	36	57	April-July	65
West Carson at Woodsfords, California				
East Walker near Bridgeport, California <u>39/</u>				

Forecasts in California provided by Department of Water Resources.

Average is for 1958-72 period except California. California is computed for 1921-70 period.

Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

SELECTED STREAMFLOW FORECASTS

FEBRUARY 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
UPPER COLUMBIA				
Columbia at Birchbank, British Columbia <u>40/</u>	43,600	94	April-Sept.	54,227
at Grand Coulee, Washington <u>40/</u>	66,000	96	April-Sept.	85,139
below Rock Island, Washington	73,600	98	April-Sept.	96,939
Kootenai near Libby, Montana	6,900	95	April-Sept.	9,506
at Leonia, Idaho	8,400	93	April-Sept.	
Blackfoot near Bonner, Montana	950	92	April-Sept.	
So. Fk. Flathead nr Columbia Falls, Montana <u>40/</u>	2,120	89	April-Sept.	3,092
Flathead at Columbia Falls, Montana <u>40/</u>	5,700	89	April-Sept.	8,649
near Polson, Montana <u>40/</u>	6,700	88	April-Sept.	10,341
Clark Fork above Missoula, Montana	1,740	95	April-Sept.	2,016
near Plains, Montana <u>40/</u>	11,300	90	April-Sept.	16,349
at Whitehorse Rapids, Idaho	12,600	89	April-Sept.	
Bitterroot near Darby, Montana	580	99	April-Sept.	732
Priest near Priest River, Idaho <u>41/</u>				
Pend Oreille below Box Canyon, Washington	14,800	93	April-Sept.	
Kettle near Laurier, Washington	1,870	100	April-Sept.	2,854
Spokane at Post Falls, Idaho <u>42/</u>	3,100	103	April-Sept.	
Similkameen near Nighthawk, Washington	1,770	117	April-Sept.	2,276
Okanogan near Tonasket, Washington	2,030	118	April-Sept.	2,718
Methow near Pateros, Washington	1,180	115	April-Sept.	
Stehekin at Stehekin, Washington	975	108	April-Sept.	
Chelan at Chelan, Washington <u>43/</u>	1,370	109	April-Sept.	1,343
Wenatchee at Peshastin, Washington	1,960	110	April-Sept.	2,633
SNAKE				
SNAKE above Palisades Res., Wyoming <u>44/</u>	2,015	77	April-Sept.	3,737
near Heise, Idaho <u>45/</u>	3,050	77	April-Sept.	
near Blackfoot, Idaho <u>46/</u>				
at Weiser, Idaho				
Grey's above Palisade, Wyoming	290	75	April-Sept.	551
Salt above Palisade, Wyoming	272	74	April-Sept.	493
Henry's Fork near Ashton, Idaho <u>47/</u>				
Teton near St. Anthony, Idaho				
Blackfoot Reservoir Inflow, Idaho				
Big Lost near MacKay, Idaho <u>48/</u>	105	57	April-Sept.	
Portneuf at Topaz, Idaho				
Salmon Falls Creek nr San Jacinto, Idaho				
Big Wood, Inflow to Magic Res., Idaho <u>49/</u>	180	60	April-Sept.	
Bruneau near Hot Springs, Idaho				
Boise near Boise, Idaho <u>50/</u>	1,150	71	April-Sept.	
Owyhee near Owyhee, Nevada <u>51/</u>	77	113	April-July	
Owyhee Res. Net Inflow, Oregon <u>27/</u>	585	115	February-July	804
Malheur near Drewsey, Oregon	88	80	February-July	
Payette near Horseshoe Bend, Idaho <u>52/</u>	1,500	81	April-Sept.	
Weiser above Crane Creek, Idaho <u>40/</u>				
Burnt near Hereford, Oregon <u>40/</u>	41	85	February-July	
Powder near Sumpter, Oregon	48	88	April-July	
Eagle above Skull Creek, Oregon	172	91	March-Sept.	
Imnaha at Imnaha, Oregon	267	87	April-Sept.	
Salmon at Whitebird, Idaho	6,070	87	April-Sept.	
Lostine near Lostine, Oregon	122	98	April-Sept.	
Grand Ronde at LaGrande, Oregon	178	113	April-Sept.	268
Clearwater at Spalding, Idaho	8,250	97	April-Sept.	
LOWER COLUMBIA				
Yakima at CleElum, Washington <u>53/</u>	1,060	110	April-Sept.	
near Parker, Washington <u>54/</u>	2,060	119	April-Sept.	
Naches near Naches, Washington <u>55/</u>	980	110	April-Sept.	436
Walla Walla, So. Fk. near Milton, Oregon	11.3	99	April-Sept.	

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

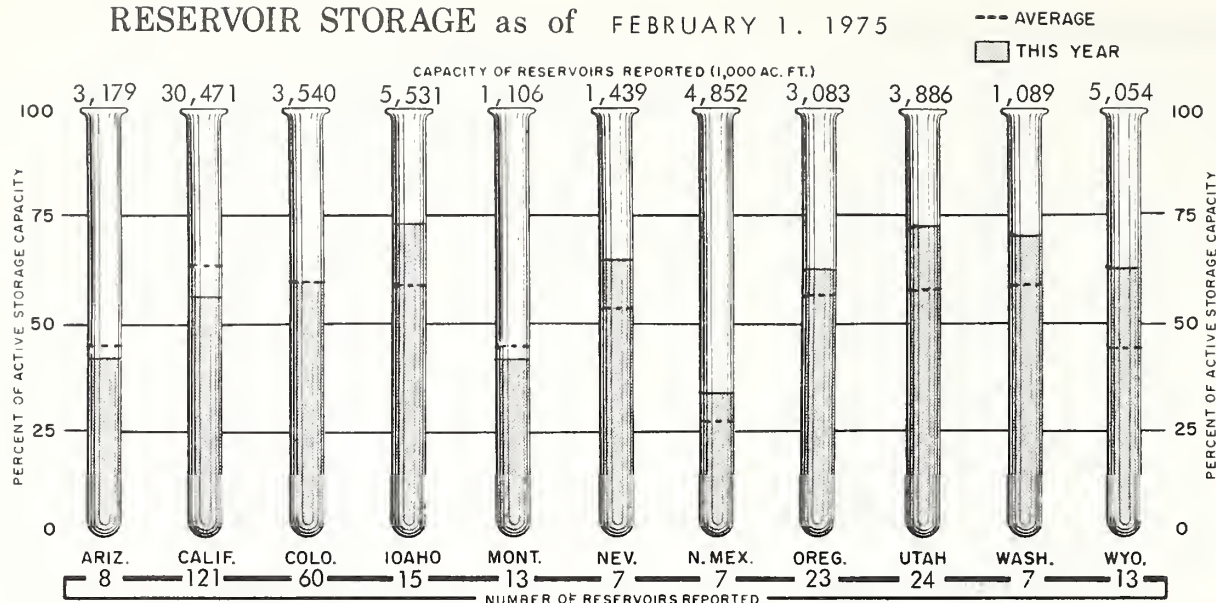
SELECTED STREAMFLOW FORECASTS FEBRUARY 1, 1975

STREAM AND STATION	FORECASTS THIS YEAR		Forecast Period	Last Year's Flow In (1,000 A.F.)
	Flow In (1,000 A.F.)	Percent of Average		
LOWER COLUMBIA (continued)				
Umatilla at Pendleton, Oregon	209	104	March-Sept.	
John Day, Middle Fork at Ritter, Oregon	115	106	April-Sept.	
North Fork at Monument, Oregon	486	90	April-Sept.	
Crooked near Post, Oregon	76	84	April-Sept.	
Deschutes at Benham Falls, Oregon 40/	594	108	April-Sept.	
Columbia at The Dalles, Oregon 40/	98,500	94	April-Sept.	139,724
at The Dalles, Oregon 40/			January-July	
Hood near Tucker Bridge, Oregon 40/	297	90	April-Sept.	
McKenzie near Vida, Oregon	1,284	102	April-Sept.	
Santiam, South, at Waterloo, Oregon	555	89	April-Sept.	
North, at Mehama, Oregon 40/	797	91	April-Sept.	
Clackamas at Estacada, Oregon	730	93	April-Sept.	
Willamette at Salem, Oregon 40/	4,696	95	April-Sept.	
Lewis at Ariel, Washington 56/	1,260	93	April-Sept.	1,872
Cowlitz at Castle Rock, Washington 57/	2,700	97	April-Sept.	4,296
NORTH PACIFIC COASTAL				
Dungness near Sequim, Washington	165	100	April-Sept.	
Umpqua, No., near Toketee Falls, Oregon 40/	165	103	April-Sept.	
Rogue at Raygold, Oregon	902	101	April-Sept.	1,305
Klamath Lake, Net Inflow, Oregon	456	85	Feb.-Sept.	771
Trinity at Lewiston, California	500	81	April-July	1,021
CALIFORNIA CENTRAL VALLEY 40/				
Sacramento, Inflow to Shasta, California	1,530	86	April-July	2,604
Feather near Oroville, California	1,070	57	April-July	2,688
Yuba at Smartville, California	560	52	April-July	1,390
American, Inflow to Folsom Res., Calif.	690	52	April-July	1,696
Cosumnes at Michigan Bar, California	90	68	April-July	177
Mokelumne, Inflow to Pardee Res., Calif.	310	67	April-July	574
Stanislaus, Inflow to Melones Res., Calif.	480	67	April-July	892
Tuolumne, Inflow to Don Pedro Res., Calif.	800	67	April-July	1,381
Merced, Inflow to Exchequer Res., Calif.	400	66	April-July	746
San Joaquin, Inflow to Millerton Lake, Calif.	820	69	April-July	1,508
Kings, Inflow to Pine Flat Res., California	820	71	April-July	1,522
Kaweah, Inflow to Terminus Res., California	170	63	April-July	331
Tule, Inflow to Success Res., California	23	39	April-July	73
Kern, Inflow to Isabella Res., California	190	45	April-July	512
ALASKA				
Chena at Fairbanks, Alaska				
Salcha near Salchaket, Alaska				

Forecasts in California provided by Department of Water Resources.
Average is for 1958-72 period except California. California is computed for 1921-70 period.
Forecasts assume average Effective Climate Conditions from Date Through Snow Melt Season.

Explanatory Notes on Forecasts listed on Inside Back Cover.

RESERVOIR STORAGE as of FEBRUARY 1, 1975



Salt River Project reservoirs are 51 percent full and 12 percent below average. Storage in San Carlos is better at 152 percent average.

Although the January-May runoff is expected to be much better than last year, present prospects are for it to be near 40 to 50 percent of average.

GREAT BASIN

Snow cover in the Great Basin as of the time of the last of January snow surveys was near average or above in most of central and northern Utah, and in central and western Nevada. It was not so favorable, however, on the eastern slopes of the Sierra Nevada mountains along the California-Nevada border in the vicinity of Reno and areas to the south. The snowpack in this area ranged from about 40 to 60 percent of average. Fortunately, a heavy month-end storm greatly improved the water outlook.

In southern Utah on the Sevier River headwaters and adjacent smaller streams, as well as in Oregon's Lake County, snowpack was variable, but generally near three-fourths of usual amounts.

Streamflow forecasts for Utah streams range from a low of 45 percent of average on the East Fork of the Sevier near Kingston in southern Utah, to a high in the north of 134 percent on the South Fork of the Ogden River near Huntsville. Pockets of below normal runoff in northeastern sections include Chalk Creek near Coalville, Settlement Canyon near Tooele, and Thomas Fork of the Bear River near the Wyoming-Idaho state line. Streams here

are anticipated to yield near two-thirds to three-fourths of their normal amounts. Similar flows are expected from California's Owens River and from Oregon's streams near Paisley and Adel.

Flow of Nevada's Humboldt River and its tributaries should be near or slightly above average.

Reservoir storage in Nevada is excellent, with all reporting reservoirs showing an above average amount. Average storage in 7 major reservoirs is 20 percent above usual amounts, providing a good outlook for major irrigated areas in Nevada.

Storage in Utah reservoirs is good. Sevier Basin reservoirs hold 147 percent of average, Provo River-Utah Lake reservoirs 137 percent, Weber-Ogden reservoirs 142 percent and Bear River Basin reservoirs 112 percent.

COLUMBIA BASIN

January storms brought substantial improvement in the water supply outlook as it appeared at the beginning of 1975. The total winter's snow accumulation to February 1 has left the Columbia Basin with a snowpack which, when considered as a whole, is slightly above average. However, it varies from a low of near half of average on the Big and Little Wood and Big and Little Lost Rivers in Idaho, to near 50 percent above average on the Owyhee River and on headwater areas of the Okanogan River in British Columbia.

A snowpack which is near three-fourths of the usual amount now lies on Washington's Lewis River and on Henry's Fork of the Snake River

STORAGE IN LARGE RESERVOIRS

FEBRUARY 1, 1975

BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE	BASIN AND NAME OF RESERVOIR	CAPACITY (1,000 A.F.)	STORAGE (1,000 A.F.)	STORAGE PERCENT AVERAGE
UPPER MISSOURI				UPPER COLUMBIA			
Belle Fourche	185	81	92	Chelan	676	243	82
Boysen	550	326	113	Coeur d'Alene	225	64	46
Buffalo Bill	373	220	133	Duncan	1,347	579	--
Canyon Ferry	2,043	1,551	95	Flathead	1,791	1,085	87
Fort Peck	19,410	15,967	121	Hungry Horse	3,428	1,990	80
Garrison	24,790	19,502	135	Kootenay	673	570	90
Hebgen	377	250	124	Lake Koocanusa	4,934	1,386	--
Keyhole	192	128	180	Lower Arrow	3,083	759	187
Lake Francis Case	5,816	3,182	99	Noxon Rapids	335	313	98
Lake Sharpe	1,900	1,750	102	Pend Oreille	1,155	256	58
Oahe	23,630	18,313	124	Roosevelt	5,232	4,845	129
Tiber	1,347	519	90	Upper Arrow	4,061	1,040	120
Bighorn Lake	1,356	845	107				
PLATTE				LOWER COLUMBIA			
So. Platte in Colo. (30)	1,120	723	102	Cougar	155	21	62
City of Denver (7)	622	448	96	Detroit	300	62	103
Colo-Big Thompson (3)	718	498	120	Green Peter	270	63	86
Glendo	784	340	109	Hills Creek	200	13	34
Pathfinder	1,016	873	256	Lookout Point	337	21	32
Seminole	1,010	541	138	Prineville	153	96	94
				Wickiup	200	190	128
ARKANSAS				Yakima Res. (5)	1,066	750	120
Conchas	273	129	70				
John Martin	354	4	5	SNAKE			
Turquoise	130	39	--	American Falls	1,125	1,009	162
RIO GRANDE				Anderson Ranch	423	279	109
Elephant Butte	2,195	427	97	Arrowrock	287	278	116
El Vado	195	87	435	Brownlee	980	739	116
UPPER COLORADO				Cascade	653	363	106
Blue Mesa	830	418	89	Dworshak	2,016	1,049	--
Flaming Gorge	3,749	3,177	194	Jackson	847	612	113
Navajo	1,696	949	166	Lucky Peak	278	50	54
Powell	25,002	17,255	205	Owyhee	715	433	106
Starvation	152	79	--	Palisades	1,200	968	124
LOWER COLORADO				Warm Springs	191	121	151
Havas	619	540	99	PACIFIC COASTAL			
Mead	26,159	19,975	115	Clair Engle	2,448	1,846	90
Mohave	1,810	1,593	95	Clear Lake	440	277	134
Salt River Res. (4)	1,755	1,014	94	Nacimiento	350	262	150
San Carlos	949	260	152	Ross	1,203	1,094	188
Verde River Res. (2)	318	46	36	Upper Klamath	584	323	90
GREAT BASIN				CALIFORNIA CENTRAL VALLEY			
Bear	1,421	1,070	113	Almanor	1,308	802	110
Lahontan	291	226	124	Berryessa	1,602	1,385	88
Rye Patch	157	100	116	Dullards Bar	930	364	65
Sevier Bridge	236	158	190	Folsom	1,010	631	107
Strawberry	274	207	182	Isabella	570	223	123
Tahoe	732	460	108	McClure	1,026	625	118
Utah	884	772	137	Millerton	521	304	76
Willard Bay	193	155	141	Oroville	3,484	1,662	67
				Pine Flat	1,013	503	82
				Shasta	4,500	3,218	95

Reservoir Storage Data Provided by Bureau of Reclamation, Corps of Engineers, Geological Survey, and water using organizations. Data from California and British Columbia provided by Department of Water Resources and Department of Lands, Forests and Water Resources, respectively.

in southeastern Idaho. On most other watersheds in the U.S. portion of the Basin, the snowpack is within about 15 percent of average. According to reports received from the British Columbia Water Resources Service, Department of Lands, Forests and Water Resources, the snow is average or above except on the East Kootenay where it is about 10 percent less than usual.

Most mountain soils underlying the snowpack are reported to be drier than normal.

Nearly all streams in the Basin, except the Snake River and most of its tributaries in Idaho, are currently expected to yield within about 15 percent of average amounts next spring and summer. With the exception of its southern tributaries and the Clearwater River, most other Idaho streams draining into the Snake River currently have prospects of yielding from 20 to 40 percent less than average amounts.

Flow of the Columbia River at The Dalles, Oregon for the April-September period is now forecast to be 94 percent of average.

Reservoir storage is good, and above average in most cases.

ALASKA

Snowfall in the south central region of this state has been heavy this winter. Surveys as of February 1 indicate that some snow courses have already accumulated more snow than they normally do throughout the entire winter. None of the watersheds where snow surveys are conducted are deficient in snowpack at this time.

In the south portion of the state the accumulation is about the same as last year. In the Susitna and Copper drainages of south central Alaska twice as much snow as last year is now on the ground. On these watersheds the February 1 pack is nearly 50 percent heavier than normal for this date.

To the north, in the Fairbanks area, the Chena and Tanana river watersheds have heavy low elevation snow, but near average amounts at higher elevations.

CALIFORNIA

The California Department of Water Resources, coordinating agency for snow surveys and water supply forecasting in California, reports that as of February 1 water supply potentials for California were only fair in most areas. The February 1 forecasts of April through July runoff range from a low of 40 percent of nor-

mal for the Tule River Basin in the San Joaquin Valley, to a high of 94 percent of normal for the Pit River in the Sacramento Valley. Most streams in the Sacramento Valley are forecasted to produce from 50 to 90 percent of normal flows, while in the San Joaquin Valley runoff from most streams are forecasted to range from 50 to 70 percent of normal for the April through July period. Lahontan area streams, on the east side of the Sierra, are forecasted to yield 50 to 70 percent of normal runoff for the period.

Storms during early February, however, generated some improvement in the water supply outlook as about 75 percent of the normal February precipitation was received within the first six days of the month. Assuming normal amounts of precipitation for the rest of February, the March 1 runoff forecasts may show some increases over those presented in this report.

Snowpack data from February 1 snow surveys showed the snow water content to be 70 percent of normal in the central and southern Sierra and 80 percent in north coastal basins. Pack densities average 25 to 30 percent, with depths now sufficient at higher elevations to retain short-term rainfall amounts should warm storms occur.

Precipitation during January was only 40 percent of normal over the State, ranging from about 10 to 15 percent of normal on the Central Valley floor to 70 percent on the North Coast. Most mountain areas received about 50 percent of normal precipitation. January continued the dry trend that produced only 60 to 70 percent of normal precipitation over the State for the four months of the water year to date (October through January).

Runoff was also very meager during January, ranging from a low of about 10 percent of normal in the San Francisco Bay Area to a high of 95 percent on the East Walker River. Total January runoff from Central Valley streams was 55 percent of normal. Flows have been below average throughout the State since the beginning of the water year, totaling only about 50 percent of normal during the four-month period.

Reservoir storage has fallen below average for the first time since the water year began. In the Central Valley, total storage in 61 reservoirs is now about 13.6 million acre-feet, or 90 percent of average. This is a substantial change from last year on February 1 when total stored supplies available in the central Valley were well above average with 3.9 million acre-feet more in storage than this year. Colorado River storage projects are storing 135 percent of average supplies for this date, about the same as last year.

EXPLANATION of STREAMFLOW FORECASTS

All flows are observed flows except as adjusted for: 1/ Storage change in Lake Sherburne. 2/ Storage change in Lima and Clark Canyon reservoirs. 3/ Storage change in Hebgen Lake. 4/ Storage change in Gibson Reservoir and measured diversions. 5/ Storage change in Two Medicine, Four Horns, Lake Francis and Swift reservoirs. 6/ Storage change in Canyon Ferry and Tiber reservoirs. 7/ Changes as indicated in (6/), (8/), plus storage change in Fort Peck. 8/ Storage change in Boysen, Buffalo Bill, Bull Lake and Yellowtail reservoirs. 9/ Storage change in Buffalo Bill Reservoir plus Heart Mountain diversion. 10/ Storage change in Pilot Butte and Bull Lake reservoirs plus Wyoming canal diversion.

11/ Changes indicated in (10/) plus storage change in Boysen Reservoir. 12/ Plus diversions to Cache LaPoudre. 13/ Plus by-pass to power plants. 14/ Minus diversion thru Gumlick Tunnel. 15/ Storage change in Price Reservoir. 16/ Minus diversions from North Platte, Laramie and Colorado rivers plus measured diversions above station. 17/ Storage change in Clear Creek, Twin Lakes and Turquoise reservoirs minus diversions from Colorado River. 18/ Storage change in Rio Grande, Santa Maria and Continental reservoirs. 19/ Storage change in El Vado and Abiquiu reservoirs. 20/ Storage change in Platoro Reservoir.

21/ Storage change in Grandby Reservoir as furnished by U.S.B.R. plus diversions by Adams Tunnel and Grand River Ditch. 22/ Changes as indicated in (21/) plus diversions thru Roberts, Gumlick and Moffat tunnels and storage change in Dillon, Homestake, Williams Fork, Green Mountain and Willow Creek reservoirs. 23/ Changes indicated in (22/) and (26/). 24/ Storage change in Blue Mesa Reservoir. 25/ Changes indicated in (24/), (30/) and (35/) and storage change in Lake Powell. 26/ Diversions to Arkansas River plus storage change in Ruedi Reservoir. 27/ (Inflow record as computed by U. S. Bureau of Reclamation.) 28/ Storage change in Taylor, Blue Mesa and Morrow Point reservoirs. 29/ Storage change in Fontenelle Reservoir. 30/ Storage change in Flaming Gorge Reservoir.

31/ Plus diversion through Duchesne Tunnel. 32/ Storage change in Moon Lake Reservoir. 33/ Storage change in Scofield Reservoir. 34/ Storage change in Joe's Valley Reservoir. 35/ Storage change in Navajo Reservoir. 36/ Plus U. P. & L. Co. tailrace and Logan, Hyde Park and Smithfield canals. 37/ Minus diversions thru Duchesne Tunnel and Weber-Provo Canal. 38/ Storage change in Lake Tahoe and Boca reservoirs (Forecast by Truckee Basin Committee.) 39/ Storage change in Bridgeport Reservoir. 40/ Corrected for major upstream impairments -- represents simulated natural flow conditions.

41/ Storage change in Priest Lake. 42/ Storage change in Coeur d'Alene Lake and diversions by Spokane Valley Farms Co. and Rathrum Prairie canals. 43/ Storage change in Lake Chelan. 44/ Storage change in Jackson Lake. 45/ Storage change in Jackson Lake and Palisade reservoirs. 46/ Storage change in Jackson Lake, Palisades, Island Park, Henry's Lake, Grassy Lake plus diversions between Heise and Blackfoot. 47/ Storage change in Henry's Lake and Island Park reservoirs. 48/ Storage change in Mackay Reservoir and diversion in Sharp Ditch. 49/ Combined flow Big Wood near Bellevue and Camas Creek near Blaine. 50/ Storage change in Arrowrock, Anderson Ranch and Lucky Peak reservoirs.

51/ Storage change in Wild Horse Reservoir. 52/ Storage change in Cascade and Deadwood reservoirs. 53/ Storage change in Keechelus, Kachess and CleElum reservoirs plus diversion by Kittitas Canal. 54/ Changes indicated in (52/) plus storage change in Bumping and Rimrock Lakes plus diversion by Roza, Union Gap, New Reservation, Old Reservation and Sunrise canals. 55/ Storage change in Bumping and Rimrock lakes and diversions by Tieton, Selah Valley, Wapatox canals and City of Yakima. 56/ Storage change in Merwin, Yale and Swift reservoirs. 57/ Storage change in Mayfield Reservoir.

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